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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,079	03/28/2001	Grant Kloster	42390P11026	4031

§791 7590 04/21/2003

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EXAMINER

MAGEE, THOMAS J

ART UNIT PAPER NUMBER

2811

DATE MAILED: 04/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application N .

09/820,079

Applicant(s)

KLOSTER ET AL.

Examiner

Thomas J. Magee

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. **ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).**

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:


Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: 1-14, and 16-20.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☐ Other: \_\_\_\_\_

  
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In response to Applicant's submission of March 14, 2003 in regard to Final Action of the USPTO on January 22, 2003, Examiner is somewhat perplexed by statements made. Applicant refers to the Ahn reference which has a filing date of October 22, 2001 and is a divisional of 09/755,071 with a filing date of January 8, 2001. The effective date for this reference is then January 8, 2001, not October 11, 2001, as alleged by Applicant. Hence, the reference is valid and will remain as part of the rejection. All subsequent arguments by Applicant then become moot .

In regard to the finding in the Office Action that the effective dielectric constant is less than three, Applicant has presented no proof that this is otherwise. The determination of effective dielectric constant is based on extremely simple calculations known to those of average skill in the art from elementary Physics and Electrical Engineering texts and handbooks. In D. G. Fink et al ("Standard Handbook for Electrical Engr." McGraw-Hill, New York (1968)), for example, capacitance for capacitors in series (stack of dielectric layers) is  $1/C(\text{total}) = 1/C(1) + 1/C(2) + \dots$  and in general ,  $C = eA/d$ , where  $e$  is the dielectric constant,  $A$  is area, and  $d$  is thickness. The effective dielectric constant is then approximated by:  $d(\text{total}) / [(d1/e1) + (d2/e2) + (d3/e3)]$  where  $d1, e1 \dots$  refer to layer 1, etc. This is consistent with effective dielectric values in the Claims of the instant application, as well as those of the references, and further confirms the value of less than three. Hence, the rejection remains as obvious to one of ordinary skill in the art.

In regard to arguments of Applicant concerning thickness of barrier layer, Examiner is again somewhat perplexed. The thickness of the diffusion barrier layer, as supported by

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Ahn, is valid both for Wang et al. and Ahn, and overlaps values recited in the instant application. In this case, the court decisions are extremely clear (*In re Aller*, and *In re Dailey*), as stated in the Office Action. It should also be stressed that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references.

Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).



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April 17, 2003